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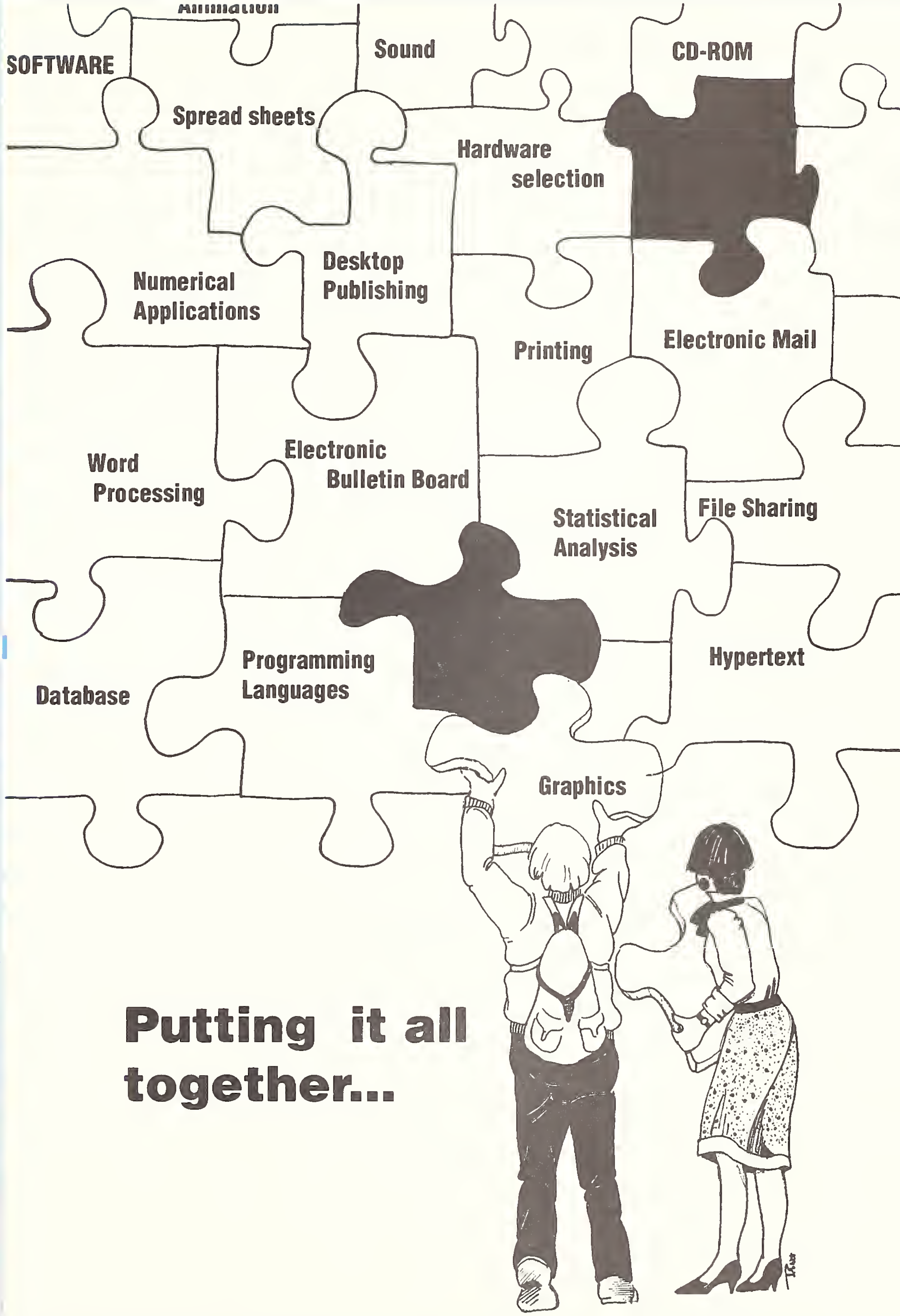
UTCS Computer News



Putting it all together...

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This newsletter was entirely produced on a Macintosh using PageMaker and other related Macintosh software.

Welcome to the UTCS Information Centre

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> *"The first question is 'What do you want to do on your computer?' The Information Centre supports many types of applications."*

Is that you on the cover of *ComputerNews*? Even experienced computer users on campus are puzzled by the variety of ways to proceed. Many departments now have computing facilities of one kind or another, and a number of specialized centres have been established, such as the Centre for Computing in the Humanities and the Ontario Centre for Large Scale Computation. It isn't always easy to sort out which resources are available to you and where you should go for information. As our cover suggests, it is rather like assembling a jigsaw puzzle.

Where does the Information Centre fit in? As part of University of Toronto Computing Services, we are the central source of support for the University community's basic computing needs, providing help for those whose needs are not met by their departments or by the more specialized computing centres. Our constituency is researchers, faculty, graduate students, and administrative staff, with the academic departments taking care of computing requirements for their own undergraduates.

The Information Centre occupies the second floor of 4 Bancroft Avenue. To some extent, the physical organization of our space reflects the way we work best. The Information Centre Laboratory is located in a large central area (Room 201), surrounded by specialist-group offices and our Education Facilities.

The Information Centre Laboratory 978-5601

The Lab contains a variety of equipment and software (see the box on page 2 for some of the machines and tools available in the Lab), allowing you to try out products and applications. You must reserve the equipment that you would like to use, and there is a fee for production-related activities, such as printing. Lab hours are 9:00 a.m. to 5:00 p.m., though certain machines may be used until 6:00 p.m. For more information, or to book, please call 978-5601.

Let's look at some of the things the Information Centre offers. To do that, we will follow the path that we recommend for those just coming into computing.

The first question is "What do you want to do on your computer?" The Information Centre supports many types of applications.

Publishing

By far, the most common computing applications brought to the Information Centre are those related in one way or another to text: word processing, desktop publishing, and high quality printing of output from those applications. Though word processing is by now a well known term, some of you may be less familiar with desktop publishing (DTP). DTP allows you to do sophisticated text layout, incorporating graphics from other packages and using a wide variety of printing styles or fonts.

Among the most popular software are WordPerfect on the PC, Microsoft Word on both the Macintosh and the PC, and PageMaker on the Mac. You can print output from these, or from one of many other packages, on one of our personal laser printers or on the Xerox 8700 Laser Printer. The charges for printing are significantly lower than you will find off campus. If you need typeset quality, our typesetter is also available, now with the same font selection as that on most PostScript laser printers. Thus, you can use a laser printer such as a personal Apple LaserWriter (ours or yours) as an inexpensive proofing device, and then set your final copy on the typesetter.

Another aspect of publishing, called Electronic Publishing, refers to several related technologies. A few adventurous publishers are starting to use Compact Disc (CD-ROM) as a medium for very large publications, such as reference tools (e.g., twelve volumes of the Oxford English Dictionary are available on a single disc). Another side of this kind of publishing, which may or may not be used in conjunction with CD-ROMs, is called hypertext. This is a way of linking one part of text with another, rather like the cross-reference system in an encyclopedia. Software of this kind is also particularly appropriate for use in conjunction with the technology for digitizing sound. This area is just developing, but we are monitoring it carefully and have already acquired some experience here. If you are interested, we may have some information for you.

Graphics

We have been improving our support for various packages on both the PC and the Macintosh. You may be able to use your graphics package in conjunction with the Polaroid Palette slide

What's in the Lab?

The Information Centre Laboratory contains an assortment of IBM and IBM-compatible, Macintosh , Amiga, and Atari computers, all with a variety of software. Some other devices that you might find useful or intriguing are described below.

Personal laser printers can produce high quality output with a wide variety of fonts. The ones in the Lab are PostScript printers, which makes them compatible with most popular word-processing and publishing packages. These printers are also capable of emulating an HP LaserJet printer.

Media conversion equipment of various kinds lets you transfer data between different kinds of disks and machines.

Linotronic 100 PS typesetter produces the highest quality output available at UTCS. Like the laser printers, it is a PostScript device.

DEST scanner has two main functions. You can convert a picture, drawing, or photograph into a graphics file for your micro. You can use the scanner to "read" ordinary typewritten (not typeset) text and turn it into a word-processor file.

Polaroid Palette is used to prepare graphical material on a PC and put the image on 35mm slides. This is the most economical way we know to put high quality graphics and text on slides.

CD-ROM player gives you access to the new technology of compact disc, a storage medium for huge amounts of material.

maker. We have also been experimenting with software that allows you to enhance or alter a graphics file created by the DEST scanner. If you are interested in "getting into graphics" on a micro, we may be able to help you.

Statistical and Numerical Analysis

Statistical and numerical applications have long played an important role in campus computing. The Information Centre provides consulting on the selection and use of statistical and numerical software, maintains a collection of Canadian Census tapes, and evaluates new products in this area of computing.

The most popular of the statistical products we support are SAS and SPSS, which run on our VM/CMS mainframe service and on the PC. Site licenses are available for the PC versions of both packages (see Software Distribution, below). Depending on user interest, other site licenses might be arranged for IMSL and NAg on the PC and SYSTAT on the Macintosh.

In recent months, we have evaluated, and reviewed in *ComputerNews*, a number of products for numerical analysis, and in coming months, we will be concentrating on statistical packages for the Macintosh.

Databases and Spreadsheets

These computing applications are growing in popularity as people become aware of their time-saving potential. Database packages such as dBASE on the PC and 4D on the Macintosh are increasingly beneficial to both scholars and administrators with a complex mass of cross-referenced data.

The value of spreadsheet packages can be appreciated by anyone who has ever worked with a conventional spreadsheet. The most popular spreadsheet on campus is Lotus 1-2-3. A similar package called Excel runs on both the PC and the Macintosh and has the extra feature of using dBASE data files if required.

Programming Languages

The major programming languages supported are FORTRAN and C, and we offer site licenses for the University of Waterloo versions of each: WATFOR-77 and Waterloo C, both on the PC.

* * *

Once you have determined your application, you must deal with the hardware and operating system that run it. This is sometimes referred to as the *platform*.

The Information Centre primarily supports IBM microcomputers and compatibles, Macintoshes, and the mainframe computers run by UTCS. Other kinds of equipment, such as modems, printers, and various types of add-on features are also supported. Whether you are buying a computer system for your own use, or trying to organize and equip an office or group of offices, we can help you decide which kind of platform is best for your needs.

Operating systems for these include CMS, UNIX, MS- and PC-DOS, OS/2, Microsoft Windows, and the Macintosh System and Finder. We evaluate new versions of these systems, track bugs in them, and help users with the command languages needed to run them.

Local Area Networks (LANs) form another plank in the platform. These link members of some designated group, such as staff of a particular office. Information Centre staff, often in conjunction with UTCS' Communications and Technical Support group, act as consultants for those who need help in choosing the "right" network for their circumstances. Once that decision is made, we can also help set up the network.

* * *

When you are set up with both your application and the right computer system, you may want to take advantage of other features available through computers. You can do more than just process information; you can gather it. This might come under the basic heading of *communi-*

cating, either with other users, or with other computers.

Communicating

We provide several services that give you access to information sources locally and around the world. One of the most useful of these is electronic mail (e-mail), and we devote considerable time to supporting existing mail packages. We also evaluate mail packages and look for ways for micro users to use e-mail in their own environment, with other kinds of micros (e.g., Macintosh and IBM), and on the international networks (e.g., NetNorth/BITNET/EARN, CDNnet, CSnet, NSFnet, ARPAnet, JANET).

You can participate in worldwide network discussion groups with individuals linked by an international network of computers. There are many such discussion groups, but the largest maintained at U of T is one for Humanists.

Another information source is an electronic bulletin board, which lets you send e-mail and also has a large assortment of shareware and public-domain software that you can download to your micro. The Information Centre maintains such a Bulletin Board Service, and all members of the University community are entitled to a free account on it. (For more information, see the article on page 14.)

Communications and file-transfer software can be important to administrative and academic staff alike. The Information Centre supports a number of communications packages, but the most common are Kermit (for the Mac and the PC) and ProComm (for the PC).

How do we support you in your computing? Our approach emphasizes getting you off to a good start and helping you to understand your computing. That is, although we are happy to help you out of trouble, we would rather keep you out of trouble in the first place. It should be no surprise then that most of our efforts are directed toward advising and consulting, instruction, and documention.

The amount of support we offer varies, depending on the product. See the software lists on page 35 for a brief explanation of our support policies.

Advising Services
978-HELP

If you have run into a computing problem but do not know where to go for help, you can try our Advising Service and let us sort out the puzzle for you. Just call 978-HELP or send electronic mail to *advisor@vm.utcs.utoronto.ca* or *advisor@gpu.utcs.utoronto.ca*. If our specially trained Advisors cannot answer your question quickly, they will arrange an appointment for you to meet with one of our Consultants or with other UTCS staff who specialize in the area of concern.

Documentation
978-4990

One of the main ways we document our systems and services is through *ComputerNews*, but we also publish some other documentation when the need arises. You can purchase UTCS documentation, as well as a selection of vendor manuals, at the Information Centre; if the vendor manuals you want are not in stock, you can order them.

The Information Centre also houses a small reference library of software manuals and a growing collection of periodicals. Materials in the library may not be borrowed, but you are welcome to use or browse through them. Manuals for the more popular packages are restricted, but you can usually arrange to use them in the Lab.

Software Distribution
978-4990

UTCS has arranged with several software vendors to make products available to individuals in the University community for a fraction of what it would cost to purchase the product independently. Some of these arrangements are simply discounts, others are actually licenses to run the product. All of the license agreements have the same general conditions: the purchaser must have a current U of T personnel or student number; the product must be used for academic purposes; the product must be purchased for use on one machine only. Site licenses must be renewed annually.

The packages currently available under site license are SAS/PC, SPSS/PC, WATFOR-77, and Waterloo C. Others are under discussion with the vendors. We distribute ProComm under a site license as well, but there is no fee for this product.

Although we have no site license agreement for it, Nota Bene may be ordered through the Information Office at some saving. Certain other shareware and public-domain software, such as Kermit, LINPACK, and EISPACK, may be obtained at no cost through the Advising Desk in Room 201.

Noncredit Short Courses 978-4565

The Information Centre designs and teaches noncredit short courses for a variety of microcomputer products. Courses cover WordPerfect, Microsoft Word, PageMaker, PC-DOS, Lotus 1-2-3, dBASE III Plus, and SAS/PC. In addition, we offer some quick seminars to help people get their feet wet: microcomputer concepts, the basic issues of desktop publishing, and an introduction to the ProComm communications package. We also offer a regularly scheduled e-mail demonstration.

The fee schedule for U of T staff and students presently ranges from $20 to $75, depending on the length of the course.

To return to our puzzle theme, it is impossible to put all the pieces together in one *ComputerNews* article or even in one issue. Our purpose here has been at least to sort the pieces into piles of the same colour, and to hand you some key pieces in the form of telephone numbers to call for information. Give us a call; we're glad to help.

Orientation Talk

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Again this year, in order to keep you informed of the information technology available from UTCS, the Information Centre is offering talks for faculty members, graduate students, and staff. Last year many departments made use of these talks, and with the new academic year underway, this is the perfect time to find out about our services, including how to get help if you need it.

We provide a wide range of services, as described briefly in the preceding pages. We can talk to you about electronic mail, desktop publishing, word processing, and other facilities and products available to you. Talks can be customized to suit your particular needs. To arrange a talk for your group or department, please contact Reinhard Schuller at 978-6878.

St. George Campus: Undergraduate and Research Access

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Engineering Annex, 11 King's College Road, Floors 1 and 2

The Annex is composed of two areas, the General Purpose Facility and the Computer Disciplines Facility (CDF).

The General Purpose Facility has 12 public CRT terminals connected to Network Terminal Servers (NTS), in Room 103. From these, any user may access the VM system (CMS), GP UNIX, or other systems. For output, the Facility provides an SSI QT600 line printer in Room 103. For assistance in using any of these machines, please see the site coordinator in Room 107A.

The Annex is also the site of the Computer Disciplines Facility (CDF). This Facility is managed by UTCS for the Department of Computer Science. During the past summer, the Facility's hardware was updated to two SUN 3/280 units running SUN OS 3.5 (UNIX) to support approximately 100 terminals in Rooms 107, 201, and 203. These terminals are hardwired to the SUNs and are used exclusively by Computer Science students.

Facilities in the Engineering Annex are open 24 hours a day.

Robarts Library, 140 St. George Street, Room 1061A

The lower level of Robarts Library houses 16 public terminals that allow users access to UTCS' general purpose systems (CMS, GP UNIX) or to other systems via PACX.

Also located in the room are 28 Texas Instruments PCs (CDF/PC) dedicated to undergraduate computing in Computer Science. An XT-100 terminal, is connected to VAX-8200 VMS at Erindale College. The Robarts Library facility has an SSI printer that supports not only PACX users and CDF/PCs, but also the output from Erindale's VMS machine.

This room is available to researchers and undergraduate users during Library business hours, which for most of the year are as follows:

Monday - Friday	08:30 to 24:00
Saturday	09:00 to 17:00
Sunday	13:00 to 22:00

There is no full-time site coordinator.

Arts and Science, Sidney Smith Building, 100 St. George Street, Rooms 2105, 1071

The 24 public terminals available in Room 2105 are connected to Network Terminal Servers (NTS). Again, any of these terminals can access CMS or GP UNIX. However, the access method is slightly different from the one used in Robarts Library, so consult the signs posted in the room. Should you require further assistance, please see the site coordinator in Room 2100. An SSI printer is available in this room. This facility is shared by both research and undergraduate users.

On the first floor, in Room 1071, UTCS operates 32 Texas Instruments PCs dedicated to undergraduate computing in Computer Science (CDF/PC). The networked PCs share an SSI printer, also located in this room.

Facilities in the Sidney Smith Building are open as follows:

Monday - Sunday	07:00 to 24:00

St. Michael's College, 121 St. Joseph Street, Room 107

This site contains 23 PCs for DCS undergraduate computing and nine public terminals connected to PACX. Any of these terminals can access any system available via PACX. Both facilities (CDF/PC and public terminals) share an SSI printer.

During the school year (September through May), this site is open 24 hours a day.

There is no full-time site coordinator at this location.

Trinity College, 6 Hoskin Avenue, Room 24

The facility in this College can accommodate only CMS users (four terminals) and CDF/PC users (six Texas Instruments PCs).

There is a Dataroyal Printer for CMS users and a DEC LA120 printer for Computer Science students.

During the school year (September through May), this site is open daily from 08:00 to 22:00.

Victoria College, 73 Queen's Park Crescent, 1st Floor

Three public terminals connect to PACX. Printing for public terminals is not available at Victoria College.

Five Texas Instruments PCs (CDF/PC) are available for DCS undergraduate computing and are connected to a DEC LA120 printer.

During the school year (September through May), the facility is available Monday through Friday, 08:30 to 23:00.

Erindale College Site

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Erindale Computing Facilities have had a number of changes during the past year. We now have an IBM PC facility composed of 30 IBM PS/2 Model 25s networked together with Novell LAN software. This allows us to offer DOS packages for our student community. Software currently available includes WordPerfect 5.0, Microsoft Word 4.0, PC-Write, PC-Calc, and PC-File. To make room for the PS/2s, the Advising Office has moved to Room 2039.

We have also acquired for the Mac and PC a DEST scanner, which can read printed images and text into a computer. This past summer the scanner has been used by our academic secretaries in converting text from the MICOM word processor to either WordPerfect or Microsoft Word.

The Centre has been actively involved in obtaining site licenses for PC software, and we are happy to announce that licenses for WordPerfect and Microsoft Word are available at the Centre.

Also, in the coming months, Erindale College will have its telephone system upgraded to Bell's CENTREX III system. A highspeed link (56 kilobits per second) to the St. George Campus will become available as soon as the CENTREX III cutover is done.

A VAX 8200 running VMS 4.6 and a VAX 750 running 4.2 BSD UNIX comprise our main computing resources for teaching and research. We have recently added BMDP to the VAX 8200 and are currently evaluating WordPerfect for VAX/VMS.

If you have any questions or need further information, please feel free to call me at 828-5311 or send mail to joe@erin.utoronto.ca.

Terminal Rooms:

Room 2040/2045 - UNIX terminals
Room 2045 - VMS terminals
Room 235 - VMS/PACX terminals
Room 2039 - VMS/PACX terminals (Researchers only)
Room 2046/2047 - PCs

New Version of Macintosh Operating System

Alex Nishri
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In April, Apple announced Version 6.0 of its Macintosh System Software. Now available, the new features include a **Notification Manager**, which lets a user know, through a visual or audible cue, that a background window needs attention. For example, suppose you are doing a file transfer in one window, which is buried beneath other windows and hence not currently visible, while you are running a word processor in another; if something goes wrong with the file transfer, the file-transfer program gets your attention through the Notification Manager. Unfortunately, the Notification Manager does not tell you which window or program wants your attention, so you may have to look at each of the many programs you are running to find the right one.

One problem with the previous version of MultiFinder is that you cannot click on a document belonging to an application that is already running. A new feature now permits you to do this, and the result, as expected, is the same as having opened the second document. This will be particularly welcomed by those who find the Finder icon display of files more natural than the non-icon display that applications put up when “Open…” is selected.

Another new feature is **MacroMaker**. When you call it up, a tape recorder is displayed. By pushing the “record” button you can have the Macintosh memorize a sequence of mouse movements and/or keyboard sequences. You can then store the sequence for later playback. You can even assign the sequence to a keyboard key, for rapid automatic sequences.

For the visually impaired, there is **CloseView**. This tool allows any part of the Macintosh screen to be enlarged from 2 to 16 times. The effect is that of holding a magnifying glass and moving it about with the mouse. Another tool for the disabled is **Easy Access**, introduced in an earlier version of the Macintosh system; it assists people who have difficulty typing with both hands, or manipulating the mouse.

QuickerGraf, which was available from other sources, has now been incorporated into this version of the System. With certain 256-colour displays, **QuickGraf**, as it is now called, can improve the speed with which graphics are shown.

The **Sound Manager** was previously available only in the Macintosh II ROM. It allows you to select the type of audible sound used when notification is required. With System 6.0, a RAM-based Sound Manager is included, which not only fixes bugs in the previous version, but also extends its use to the Macintosh Plus and Macintosh SE.

System 6.0 includes major changes to software related to internationalization. This software, consisting of utilities built into the system and used by developers, permits the writing of applications that can be used in many languages other than English. This is important for researchers who have used the Macintosh for non-English languages. It can also lead to lower prices for all software, because the potential market for an internationalized Macintosh application is very large.

One tool for users, undocumented in the new manual, is a **Map Utility**. Available through the control panel, you can use it to find the longitude and latitude of any point on a provided world map. You can also find time-zone differences and distances. One interesting feature permits you to quickly set your Macintosh’s internal clock to new time zones, by clicking at the new location on the map.

One welcome change in Version 6.0 is a move to more meaningful numbering. The previous Version, 5.0, actually consisted of System 4.2, Finder 6.0, and MultiFinder 1.0. For release 6.0, the Versions are 6.0, 6.1, and 6.0 respectively. This will hopefully eliminate some of the confusion of the past (see attached table).

Macintosh System 6.0 is distributed free with any new Macintosh bought. For an existing Macintosh Plus, Macintosh SE, or Macintosh II, you can get a free copy of the software. If you want the manual as well, the complete package is $49.

UTCS has recently obtained a copy of System 6.0. Although we have not yet been able to test it thoroughly, we have encountered some problems. Some of the new features do not work well with some applications (for example, when using MacroMaker and MacRecorder, the last two pull-down menus sometimes switched places), and some applications may crash. In fact, although System 6.0 is an "official" release in the United States, Apple Canada says that System 6.01 will be the official release in Canada. (Exactly what that means is unclear since some new Canadian Macintosh owners have received only System 6.0.) UTCS recommends not moving to the new release unless you need one of the new features. In that case, you may contact us to determine whether your applications are on our list of those known to work correctly with System 6.0.

Apple has been creating two releases of its operating system each year. System 7.0, scheduled for release later this year, is expected to include a new interapplication communication mechanism. Until now, Macintosh users moving information between applications have had to use the Clipboard. With the new mechanism, dynamic links should be possible. For example, you might put some data into a spreadsheet, have it produce a pie chart of that data, and then put the pie chart into a report you are working on in your word processor. Through a dynamic link, a change to the numbers in the spreadsheet could change the pie chart, which, through another dynamic link, could automatically change the chart pasted into your report. (Right now, you have to move a new chart from your spreadsheet to your word processor, through the Clipboard, if you change the numbers.)

System 7.0 is also expected to include improvements to make multitasking easier. For example, a "set aside" feature will permit opened applications to be hidden from view. You will also be able to customize the Apple menu so that the opened applications will be listed before the desk accessories.

Also expected in the next System is support for colour PostScript through QuickDraw, better support for background printing, and better support for other output devices.

We hope to keep you updated when the next System is released. For more information, or a demonstration of System 6.0, please call 978-HELP.

Macintosh System Version Numbers

Date	Jan 85	Sept 85	Jan 86	June 86	Jan 87	Apr 87	Sep 87	Apr 88
Official Name	**none**	**none**	**none**	**none**	**1.0**	**2.0**	**5.0**	**6.0**
System	**3.0**	**3.2**	**3.3**	**4.0**	**4.1**	**4.1**	**4.2**	**6.0**
Finder	**4.1**	**5.1**	**5.3**	**5.4**	**5.4**	**5.5**	**6.0**	**6.1**
MultiFinder	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**1.0**	**6.0**
ImageWriter	**none**	**2.0**	**2.1**	**2.3**	**2.5**	**2.6**	**2.6**	**2.7**
LaserWriter	**n/a**	**n/a**	**1.1**	**3.1**	**3.3**	**4.0**	**5.0**	**5.2**

New MS-DOS Version

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On July 19, Microsoft announced a new version of its Disk Operating System, DOS 4.0. UTCS has not yet had a chance to evaluate the new version, but according to the announcement, MS-DOS 4.0 will have a new user interface. Using a mouse, you can now select files by pointing at them and select actions by choosing from lists in pull-down menus. In this way, applications can be started and files can be renamed, copied, erased, and printed; Help is also available from the system if you need assistance completing a task. The new interface should look very much like that used by Microsoft Windows, as well as the still-awaited Presentation Manager in Microsoft's OS/2 1.1. For people without a mouse, DOS 4.0 does have alternative keyboard sequences to accomplish selection of files and actions; however, if these are like the keyboard sequences in Microsoft Windows, you may prefer a mouse (we have found that many people do).

The new user interface is expected to make it easier for novices to start using an MS-DOS machine. However, experienced users comfortable with their CD, RMDIR, and CHKDSK commands will find that the old command prompt user interface is still available in DOS 4.0.

If you have a hard disk larger than 32 megabytes (MB), there is good news. In DOS 3.3, you had to divide large hard disks into logical partitions of less than 32MB each. These partitions then appeared as separate drives (C:, D:, E:, etc.). With DOS 4.0, a disk partition can be larger than 32MB; you no longer need to partition a large disk, although you may if you wish. For those whose databases and files are very big, individual files can now exceed 32MB.

Previous versions of DOS cannot properly support disks larger than 32MB, because they use 16-bit pointers in their disk format; DOS 4.0 uses 32-bit pointers when it formats more than 32MB. This means that if you format a disk or partition larger than 32MB with DOS 4.0, you will *not* be able to use it from an earlier version of MS-DOS.

For those with more than 640KB RAM, DOS can now use Lotus/Intel/Microsoft (LIM) Expanded Memory Specification (EMS) 4.0. EMS, which requires that you have suitable hardware to drive the additional memory, can be used by the DOS 4.0 BUFFERS, FASTOPEN, and VDISK commands. As before, individual applications must support EMS, if they need to use Expanded Memory. If you have problems with the amount of memory available, you can examine the situation with a new DOS 4.0 command, MEM, which displays your memory configuration and, optionally, a detailed description of utilization.

> *"The new user interface is expected to make it easier for novices to start using an MS-DOS machine. However, experienced users will find that the old command prompt user interface is still available in DOS 4.0."*

With suitable EGA or VGA displays, DOS 4.0 can now support more than 25 lines of text. This can be done through the new options on the MODE command. You can also set the response speed of the keyboard through the MODE command.

The installation procedure for DOS 4.0 has been simplified. If you had trouble setting up CONFIG.SYS and AUTOEXEC.BAT files (used to configure DOS and set options), these are now created by the installation procedure. The procedure itself involves running a program called SELECT, which walks you through the available choices.

Microsoft sells MS-DOS through other companies, such as Zenith, Compaq, or IBM. Each vendor may make small alterations or additions to its version of MS-DOS. IBM's version of MS-DOS 4.0, called PC-DOS 4.0, is now available on 3.5-inch diskettes for $196. The 5.25-inch diskettes will not be available until the third quarter of this year. Also not available until third quarter is the PC-DOS 4.0 *Technical Reference Application Programming* manual.

IBM will upgrade any older version of PC-DOS to Version 4.0, at a cost of $124 until next April. PC-DOS 4.0 will run on all IBM PC, PC-XT, PC-AT, and PS/2 models with a minimum of 256KB of RAM. It will not run on the IBM PC Jr.

PC-DOS 4.0 is available in 14 national language versions; the Canadian French version will be released later this year.

Many other changes have been announced for DOS 4.0, and we hope to be able to evaluate it soon. If you would like more information, please call us at 978-HELP.

ProComm Communications Program Seminar

September 14, 1988
1:00 - 3:00 p.m.

November 1, 1988
9:00 - 11:00 a.m.

ProComm is a general purpose communications program currently available to all U of T faculty, staff, and students. It is the resident communications program in the IBM Education Facility.

A seminar has been scheduled to introduce ProComm and its various features: terminal emulation (a number of popular ones will be reviewed); the dialing directory; file transfer protocols, such as Kermit and XMODEM; configuration and modem parameter settings; and the DOS gateway, which allows you to execute DOS commands and other programs while you are still in ProComm.

A course fee is attached to this seminar. Copies of ProComm are made available at no charge to members of the University, but you must bring your own diskettes (two 5.25" or one 3.5").

To reserve a place in this seminar, please contact Irene Rosiecki at 978-4565.

Free NetNorth (Electronic Mail) Demonstration

September 14, 1988
3:00 - 4:30 p.m.

November 1, 1988
11:00 - 12:30 noon

Anyone interested in sending documents to colleagues or friends reliably, quickly, and inexpensively will not want to miss this demonstration. We will introduce you to the NetNorth/BITNET/EARN communications network, which is accessible from the CMS system. This network connects more than a thousand universities and research institutes in Europe, Asia, and North America. Sending documents or files over the network is very easy to learn.

The demonstration will last just over an hour. Included will be how to send mail and files to another institution, and how to talk directly to someone on the network. ***Please note this is a demonstration only.***

Space is limited. If you would like to attend one of these sessions, please contact Irene Rosiecki at 978-4565 to reserve a place.

Potpourri of Interesting Products for Microcomputers

Paul Roth
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Interesting products often find their way into the hands of the Information Centre's Micro Support Group. Here is an account of four that we think might be useful.

SQL Tutor

Relational database management systems (DBMSs) have practically cornered the database market. Products vary, of course, and the closest thing to a standard among them appears to be the use of SQL (Structured Query Language) as the basis of the interface between the user and the data. Both mainframe database systems, such as IBM's DB2, and micro- and mini-based DBMSs, such as ORACLE and INGRES, already rely on it. Ashton-Tate, the maker of dBASE products, implements SQL in the forthcoming dBASE IV, and IBM uses it in the OS/2 Extended Edition database manager.

Since SQL may well become the standard way to communicate with database managers, the prudent database user will want to learn it. To this end, a company called SYTRAN is offering a diskette-based tutorial called SQL Tutor. According to the company, it is intended to be a "Computer Assisted Training Course aimed at all potential users of SQL in any DBMS environment." It runs on IBM PCs and compatibles and requires no special installation; it works equally well on a Hercules Card with TTL monitor and on an RGB monitor with CGA adapter.

We were able to review a prerelease version of the software. It is by no means a complete SQL handbook; though its lessons are comfortably paced, they lack many technical details. However, it would be useful for an SQL beginner who has little knowledge of relational concepts, and it might also serve as a useful refresher course for someone with a bit of SQL experience.

If you would like to discuss this product, please call me. SYTRAN has provided us with a demonstration diskette, available in the Micro Lab, which you might also like to see.

LapLink, DeskLink, and LapLink Mac

The Information Centre Lab has recently acquired two products called DeskLink and LapLink Mac; DeskLink includes a third package called LapLink. All are produced by Traveling Software.

LapLink is a combination of hardware and software that lets you transfer data quickly from one PC to another, connecting the two machines by their serial ports. The package includes a special null-modem cable with connectors that make it convenient to connect, for example, a laptop to a desktop PC. Once connected, LapLink software running on each machine allows easy transfer of selected files and subdirectories, or indeed the contents of an entire hard disk. All this is done with a menu-driven interface that is easy to learn and use. Operating at speeds of up to 115,200 bits per second (bps), this package is fast and convenient, and, most important, it actually works.

DeskLink is a superset of LapLink. It provides the equivalent of a two-station Local Area Network, allowing you to share disk directories and peripherals such as printers from either PC. In fact, one machine becomes passive, allowing the other to use the resources of both, although some amount of direct communication between users of each machine is possible.

LapLink Mac is similar to LapLink, but, as its name suggests, it is designed to connect a PC and a Macintosh; as with LapLink, the cables are included in the package. Files/documents and directories/folders may be transferred back and forth, this time at speeds up to 52,600 bps. LapLink Mac has an advantage over the TOPS network, for example, because it can tag files destined for the Mac with their application type, so that they arrive on the Mac with their application association intact. For instance, you can transfer a Lotus 1-2-3 spreadsheet to Excel on the Mac; when you double-click on the spreadsheet's Macintosh icon, Excel is launched automatically. This is smoother than other transfer methods, since some conversion is done for you at the application level. The only drawback to LapLink Mac is that it is run almost entirely from the PC side. The Mac user interface is essentially passive during transfers and looks more or less like LapLink itself.

Both packages are reasonably priced and seem to work as advertised. DeskLink and LapLink Mac are available in the Information Centre Lab for your review or for actual transfers.

Dots-Perfect

You may have seen the advertisement in various PC magazines: it depicts a cross-section of an Epson printer with the caption "You already own half of a great printer." For owners of Epson FX-80, FX-100, FX-85, FX-286, JX, RX, and MX printers, a company called Dresselhaus offers a ROM upgrade called Dots-Perfect, which increases the printer's abilities. Among the features of this upgrade are IBM ProPrinter emulation; NLQ (near letter quality) in all modes including condensed, double-wide, and italics; Extended ASCII characters; and user-defined characters.

Those who have struggled to make an Epson printer produce italics in NLQ will appreciate the benefits of this upgrade. It is available for under a hundred dollars. For more information, you may call me or call Dresselhaus directly at 1-800-368-7737 toll-free.

Power R and the Sharp QA-50

For nearly two years, our IBM classroom has been equipped with a Sharp QA-25 LCD projection panel. This useful device attaches to a PC and rests on a conventional overhead projector, displaying the image of the PC's screen on a wall or film screen. We have found this to be a truly helpful teaching aid, as well as an excellent presentation vehicle.

After a long search, we have finally found equipment that allows similar projections from a Macintosh SE. While LCD panels for Macintoshes were announced almost a year ago, we found none that were both reasonably priced and of a high enough quality to use in our Mac classroom. Now, however, we have obtained from a Seattle company a product called Power R; when installed in a Macintosh SE, it allows connection to a Sharp QA-50 overhead projection panel. The resulting projection is excellent.

Another benefit is the Sharp QA-50's more usual ability to project screens from an IBM PC in EGA mode. Thus, it can serve in both the PC and Mac worlds. This combination had been promised before, but had never materialized. *It is in use now in our classrooms.*

If you would like more information on any of these products, please call me at 978-5426.

Public-Domain and Shareware: Try our Bulletin Board Service

Alicia Damley
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Many microcomputer users on campus already know the joys of a Bulletin Board Service (BBS). A BBS offers a variety of useful, innovative, and interesting software that may be classified as either public-domain or shareware. Public-domain software is free of cost, but copyrights are usually retained by the author. Shareware, on the other hand, is "try before you buy" software. You are entitled to try this software at no cost, and if you find it useful, you can register yourself as an official owner by sending a payment of anywhere from $10 to $50. If you are interested in accessing such software, this article is for you.

Here at the University, UTCS operates a Bulletin Board Service. It is currently a single-user system running FIDO software. By the time this article is published, however, we hope to have a multiuser system running in its place, allowing up to four people to access its resources simultaneously. Our BBS offers primarily IBM and Macintosh software. This includes utilities, word-processing-related programs, graphics-related programs, programming-language-related files, and some games for your spare time. In addition, there is some Apple II, Amiga, and Atari software.

How can you access such a system? The only requirements are that you be a member of the University, and have a microcomputer and a modem. UTCS supports dial-in modem services of 300, 1200, and 2400 bits per second (bps). The phone numbers for these bps rates are 978-6200, 978-3959, and 978-7239 respectively. Once you have successfully connected, you are prompted with either "enter class" or "SERVICE?", to which you should respond "bbs". If one of the BBS lines is free, you will be presented with a salutation screen. Following this, you will be prompted for your name and password. Once these have been verified, you will have 60 minutes to browse through the files on the system and exchange mail. It's that simple!

If you do not currently have an account on the BBS, you can easily request one. Go through the above steps. Your name will not be recognized by the system, and you will be asked to leave your department and affiliation with the University (e.g., faculty, student, or staff). You will have five minutes to complete this mail; after that, your session will be ended. The BBS System Operators (SYSOPs) check mail and account requests each weekday between 9:00 a.m. and 12:00 noon. Once your University affiliation has been verified, an account will be set up in your name and a password assigned to you. (By default, this is the first four letters of your *last* name.) Now, all the files and mail facilities of the system are at your disposal.

The BBS is in operation 24 hours a day, with downtime between 9:00 a.m. and 12:00 noon, Monday through Friday, for scheduled maintenance.

If you encounter any problems while using the BBS or if you have any questions regarding this service, please feel free to send a message, at the BBS prompt, to either of the two SYSOPs (Dariusz Dabek or Alicia Damley), and one of us will respond by the following business day. If you have difficulty connecting to the system in the first place, please call Advising Services at 978-HELP. ▨

Fall Courses

Irene Rosiecki
rosiecki@vm.utcs.utoronto.ca

To find out about registration, course fees, and availability, please contact:

UTCS Education Office
4 Bancroft Avenue, Room 217
Phone: 978-4565

Some courses may already be filled, but a waiting list is kept in case of cancellations.

Microcomputer Concepts (IBM)
Date: September 15, 1988
Time: 1:00-4:00 p.m.

Introduction to dBASE III Plus
Date: September 26-30, 1988
Time: 12:00-3:00 p.m.

Date: October 18, 20, 25, 27, November 1, 1988
Time: 5:00-8:00 p.m.
EVENING COURSE

Date: November 7-11, 1988
Time: 9:00-12:00 noon

Introduction to PC-DOS
Date: September 12-16, 1988
Time: 9:00-11:00 a.m.

Date: November 14-18, 1988
Time: 9:00-11:00 a.m.

Introduction to Desktop Publishing
Date: October 13, 1988
Time: 10:00-3:00 p.m.

Introduction to Lotus 1-2-3
Date: September 13, 15, 20, 22, 27, 1988
Time: 6:00-9:00 p.m.
EVENING COURSE

Date: October 24-28, 1988
Time: 2:00-5:00 p.m.

Date: December 5-9, 1988
Time: 2:00-5:00 p.m.

Introduction to PageMaker on the Macintosh
Date: October 17-21, 1988
Time: 11:00-1:00 p.m.

Introduction to SAS on the IBM PC
Date: October 3-7, 1988
Time: 9:00-11:00 a.m.

Date: November 8, 10, 15, 17, 22, 1988
Time: 6:00-8:00 p.m.
EVENING COURSE

Date: December 5-9, 1988
Time: 9:00-11:00 a.m.

Intermediate Applications of SAS on the IBM PC
Date: September 26-30, 1988
Time: 3:00-5:00 p.m.

Date: November 7-11, 1988
Time: 3:00-5:00 p.m.

Microsoft Word on the IBM PC
Date: November 21-25, 1988
Time: 1:00-4:00 p.m.

Microsoft Word on the Macintosh
Date: October 17-21, 1988
Time: 1:00-5:00 p.m. (October 17)
1:00-4:00 p.m. (October 18-21)

Introduction to WordPerfect 4.2
Date: September 26-30, 1988
Time: 9:00-12:00 noon FULL

Date: October 3-7, 1988
Time: 1:00-4:00 p.m. FULL

Date: November 21-25, 1988
Time: 9:00-12:00 noon FULL

Date: December 12-16, 1988
Time: 9:00-12:00 noon

Advanced WordPerfect 4.2 Topics
Date: September 19-23, 1988
Time: 2:00-4:00 p.m. FULL

Date: October 24-28, 1988
Time: 9:00-11:00 a.m.

Introduction to Version 5.0 WordPerfect
Date: September 19-23, 1988
Time: 9:00-12:00 noon FULL

Date: November 14-18, 1988
Time: 1:00-4:00 p.m.

WordPerfect Version 5.0 Update Seminar
Date: September 14, 1988
Time: 11:00-1:00 p.m.

Date: October 25, 1988
Time: 11:00-1:00 p.m

Date: October 27, 1988
Time: 11:00-1:00 p.m.

EUREKA: The Solver

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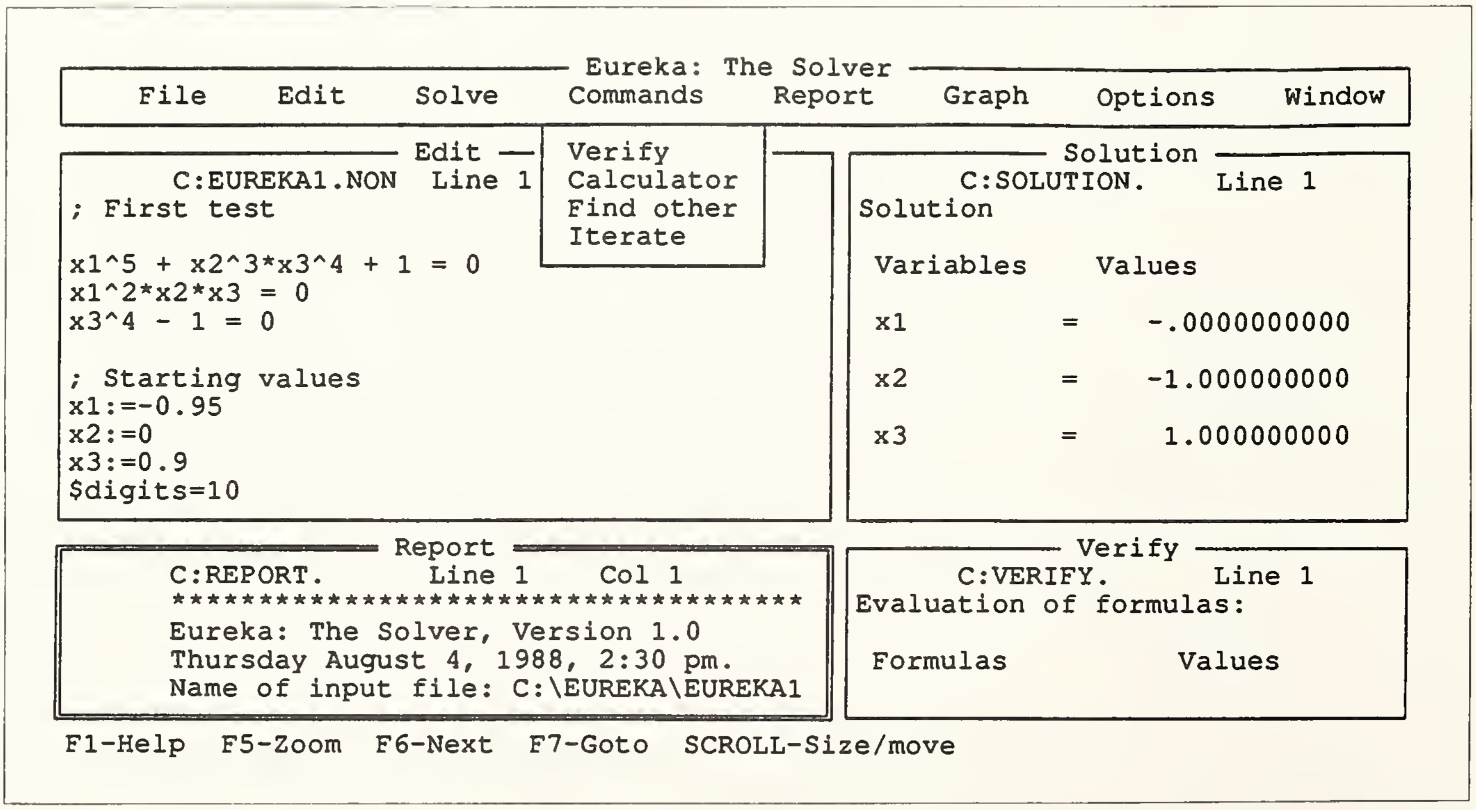
EUREKA: The Solver is a software package designed primarily for solving equations. It can solve systems of linear, nonlinear, and transcendental equations. In addition, EUREKA can evaluate derivatives and definite integrals, and minimize and maximize functions with or without constraints. Graphs of functions can easily be plotted and printed, reports generated, and units converted automatically. The package has a number of built-in functions, including familiar trigonometric functions, the logarithmic and exponential functions, and several useful statistical and financial functions. Users can also define their own functions. The program includes a Calculator Mode, which has all the functions of a powerful hand-held calculator, and can access EUREKA's built-in functions. In default mode, EUREKA uses only real numbers, but it can be made to recognize complex numbers too.



```
                                  Eureka: The Solver
   File     Edit     Solve     Commands     Report     Graph     Options     Window

                     Edit     Verify                                 Solution
     C:EUREKA1.NON  Line 1    Calculator              C:SOLUTION.     Line 1
; First test                  Find other           Solution
                              Iterate
x1^5 + x2^3*x3^4 + 1 = 0                            Variables     Values
x1^2*x2*x3 = 0
x3^4 - 1 = 0                                        x1        =     -.0000000000

; Starting values                                   x2        =     -1.000000000
x1:=-0.95
x2:=0                                               x3        =      1.000000000
x3:=0.9
$digits=10

                   Report                                       Verify
      C:REPORT.      Line 1     Col 1                 C:VERIFY.       Line 1
      ***********************************          Evaluation of formulas:
      Eureka: The Solver, Version 1.0
      Thursday August 4, 1988, 2:30 pm.             Formulas           Values
      Name of input file: C:\EUREKA\EUREKA1

F1-Help   F5-Zoom   F6-Next   F7-Goto   SCROLL-Size/move
```

The program is menu driven, and the illustration below shows the view of the main screen with four basic windows and a pull-down submenu for the Commands command.

To solve a set of equations, one typically goes through the following steps: the equations are specified in the Edit window, together with starting values and additional information (such as the required number of digits for the solutions), and the solution is requested. The quality of solutions is checked in the Verify window, and, if found unsatisfactory, the equations may be iterated further. The user may also ask EUREKA to look for other solutions by starting from a distant point (however, this option did not seem to work very well for the equations I tried). The alternative solutions may also be looked for by changing the current values of the variables and re-solving the equations. This can be done through the Options command from the Main menu and then choosing the Variables command. Unfortunately, due to a bug in the program, not all variables can be changed this way (EUREKA's Technical Support people say that the problem is being investigated). The starting values can, of course, be changed in the Edit window. Nevertheless, for a certain system of three equations, which had two symmetric solutions, I could not make EUREKA converge to one of these solutions. No matter how close to it I started, it always converged to the other one. In terms of speed I found the package quite fast.

The various windows accessed from the Main menu can be zoomed in (expanded to fill the screen), their relative sizes can be changed, and they can also be rearranged on the screen in many different ways.

Vendor: Borland International
4585 Scotts ValleyDrive,
Scotts Valley, California.
USA 95066

Host Computer: IBM PC-XT, AT, or compatible.

Operating System: PC-DOS Version 2.0 or higher.

System Requirements: 384KB RAM; optional 8087 math coprocessor chip; optional CGA, EGA, or Hercules Graphics Card.

Documentation Provided: *EUREKA: The Solver Owner's Handbook*

Cost: US$49.95 (including shipping) for educational institutions.

Single-variable functions can be plotted with just a few keystrokes, and you can easily obtain a list of function values on a grid of your choice.

A nice feature of the program is the Report command, which prepares a report-of-solved-equations file and sends it to a specified output device. You can also have your work session periodically written to a log file. This is useful when you want to solve a series of problems and save all your work to a file.

A context-sensitive Help function is available at every stage, making it very easy to use the program even without the manual, which, by the way, is nicely designed, well thought-out, and full of helpful examples. The distribution diskette also contains a number of sample equation files described in detail in the manual.

Generally speaking, if your requirements are limited to solving equations and minimizing/maximizing functions, and if you like menu-driven products, EUREKA may be for you, especially if the remaining bugs are corrected. I find its ease of use a particularly impressive feature, and the low price (see box) may also be a consideration. Anyone wishing to examine the program is welcome to do so at UTCS, but please contact me in advance at 978-5045.

1988 SIAM Meeting

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The annual meeting of the Society for Industrial and Applied Mathematics (SIAM) was held in Minneapolis from July 11 to 15. The program consisted of 12 invited lectures, 33 minisymposia on selected topics, and

Selected Papers from 1988 SIAM Meeting

Invited talks

Gerard Bricogne, "The Mathematical Theory of the Crystallographic Phase Problem"
James Glimm, "Adaptive Computational Methods"
Celso Grebogi, "Chaos, Strange Attractors, and Fractal Basin Boundaries in Nonlinear Dynamics"[1]
Kenneth Wilson, "Grand Challenges to Computational Science"
Arthur T. Winfree, "3D Nonlinear Waves in Excitable Media - Modeling the Heart Muscle"

Centennial Lectures

Thomas Kailath, "Mathematics and Signal Processing"
Steven A. Orszag, "Applied Mathematics and Scientific Computing: Pioneers, Puzzles, Prospects"
Richard Tapia, "The Emergence of Numerical Optimization"

The John von Neumann Lecture

Germund G. Dahlquist, "Business and Pleasure with Stiff Differential Equations"

Minisymposia

- *Applications of Supercomputing to Geometry and Topology*
- *Bringing MACSYMA into the Mainstream of Applied Mathematics*
- *Chaotic Dynamics and Fractals*
- *Materials Science and Applied Mathematics*
  - "Polarisation of Charge Density Waves"
  - "Coulomb Interaction and Wigner Crystalisation in Silicon MOSFET Structures"
- *Mathematical Epidemiology.*
- *Mathematical Models of Phase Transition and Growth Phenomena in Statistical Physics, and Material Science*
  - "Monte Carlo Study of Spinoidal Decomposition in the Two-Dimensional Kinetic Ising Model"
  - "Numerical Simulation of Morphological Development During Ostwald Ripening"
  - "Stress Coarsening"
  - "Field Theory for Growth Kinetics"
  - "Scaling and Growth Laws for Kinetic Models of Phase Separation in 2D and 3D"
- *Waves in Elastic-Plastic Solids*

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[1] The talk was based to some extent on a review article "Chaos, Strange Attractors, and Fractal Basin Boundaries in Nonlinear Dynamics" by Celso Grebogi, Edward Ott, and James Yorke, *Science*, Vol. 238, 1987, pp. 585-718.

contributed sessions with about 300 presentations. (See the box for a selected list of papers.) The conference was preceded by a short course on "Nonlinear Dynamics, Chaos, and Bifurcation," with lectures by John Guckenheimer and James A. Yorke. The subject of nonlinear dynamics and chaos was also prominently represented at the conference itself.

Several symposia dealt with mathematical problems encountered in materials science. The minisymposium on *Chaotic Dynamics and Fractals* discussed new mathematical tools developed for analysis and computation of images. Chaotic dynamics also dominated the minisymposium on *Mathematical Epidemiology*.

A number of minisymposia and contributed sessions dealt with supercomputers, vectorization, and parallel processing. Many contributed papers discussed the design of algorithms to take advantage of parallel architecture. Problems relating to distributed computing were also discussed, and a new network topology — spiral network — was presented. It is claimed to have many advantages such as ease of expansion, fast self-routing, high tolerance to network faults, and increased network security (a preprint giving more detail about the network is available at UTCS).

The minisymposium on *Applications of Supercomputing to Geometry and Topology* offered spectacular computer-generated images. Participants were shown VCR films of new constant mean curvature surfaces changing dynamically with changing parameters, exploding Julia sets, and structural instabilities of sine and cosine. The amount of supercomputer time required to produce these images was as impressive as the images themselves.

The minisymposium on *Bringing MACSYMA into the Mainstream of Applied Mathematics* discussed recent and proposed symbolic mathematics enhancements to MACSYMA (the most extensive symbolic-manipulation software package available at present) and described a number of sophisticated applications of the package.

Accompanying the conference was an exhibition by book publishers and computer hardware and software vendors. Several parallel processor systems were presented, such as NCUBE, which claims to be the cheapest multiprocessor system around, and DAP (Distributed Array Processor). Three interactive scientific software systems, which had symbolic-manipulation capability, were shown. One was MACSYMA (see above). Then there was MathScribe, a user-friendly multiwindow system from Tektronix, which can do numerical calculations, symbolic manipulations (using REDUCE, another well-established symbolic-manipulation package, for this purpose), good graphics, and much more. Finally, there was MATHEMATICA — a new product (Wolfram Research Inc.) that claims to be "A system for doing Mathematics by computer." It includes arbitrary precision numerics, symbolic manipulations, powerful graphics, and a novel programming language that allows one to define new mathematical objects and create specialized application packages.

Version 3 of SPSS^X Available on CMS

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The newest release of the SPSS^X package is now available on CMS for user testing. It may be accessed by issuing the command GETME SPSSX NEW. While users of the currently available SPSS^X package should have no difficulty using Version 3, several new optional features are contained in this release. A brief description of these new features is included below; for more details, consult the *SPSS^X User's Guide*, 3rd Edition, as well as the SPSSX INFO files.

SPSS^X can now run in an interactive as well as batch mode. Thus, commands can now be executed immediately instead of by submitting batch command files. In both modes it is possible to create a journal file, which records a log of submitted commands. Once SPSS^X has been accessed with the appropriate GETME command, enter:

```
spssx *
```

to activate interactive SPSS^x on CMS. The prompt

```
SPSS-X>
```

appears, and SPSS^X commands can then be issued. The form of these commands is unchanged from those of batch jobs, with the exception of a command terminator (a period) at the end of the command. Thus, if a command cannot fit on a single line, the absence of the terminator at the end of the line informs the system that the line is to be continued; as a result, the prompt

```
CONTINUE>
```

appears after the Return key is pressed. Interactive SPSS^X repeatedly issues the CONTINUE> prompt on subsequent lines until a command terminator is entered. The FINISH command is used to terminate an interactive session.

The SPSS^X Macro Facility is another new feature of this release. Macros can be used to save time and typing, in a variety ways. One of the simplest applications of the macro language is to group repeatedly-referenced variables within an SPSS^X program. For example, the following three lines of code create a set of variables, called DEMOVAR, which includes the variables BIRTHYR, SEX, SIBS, MARITAL, KIDS, OCCUP, ED, and TITLE.

```
define demovar()
  birthyr sex sibs marital kids
  occup ed title
!enddefine
```

The DEFINE and !ENDDEFINE commands are required as the first and last statements in any macro definition. The DEFINE keyword is followed by the macro name, in this case DEMOVAR. Optional macro arguments can be included within the parentheses. In this simple example, these additional specifications are not needed, so the parentheses alone are given. The body of the macro definition is included between the DEFINE and !ENDDEFINE statements. The macro DEMOVAR therefore names the eight variables listed in the example. Every time DEMOVAR is encountered in subsequent lines of this program, it would be replaced by the the variable sequence as above. Thus, the statement

```
frequencies variables=demovar
```

would produce eight sets of frequency tables.

A series of commands can also be defined as a macro. This might prove useful when a set of procedures must be executed repeatedly for several variables. For example, the following macro, named TESTVAR, specifies a series of commonly performed tasks in the analysis of variance. The assumptions of normality and constant within-group-variance are assessed through the use of histograms and scatterplots, followed by a one-way analysis of variance. The macro defining these steps is specified once, as follows:

```
define testvar()
split file by group
```

```
  frequencies vars=response
        /histogram
  split file off
  anova variables=response with
   group(1,3)
  plot  plot=response with
   group(1,3)
  !enddefine
```

The TESTVAR macro is then called for execution three times, first for the original dependent variable, then for each of the two transformed responses, as shown below:

```
  testvar
  compute response=
   sqrt (response)
  testvar
  compute response=
   ln(response)
  testvar
```

More intricate applications of the macro language permit complex input and procedure specifications, which may include macros with argument assignments as well as looping structures. Appendix A of the new Version 3 manual describes these features. An annotated example on pages 991-993 illustrates a macro that may be used to transpose a matrix.

Two new commands in this release may interest people using data in matrix form. The MATRIX DATA command will read raw matrix materials and convert them to a matrix system file that can be used by the multivariate procedures that handle matrix input, such as REGRESSION and CLUSTER. The minimum syntax for the MATRIX DATA command is:

```
  matrix data variables=varlist
```

The assumption in using the command in this form is that the data appear in the program, rather than within an external file, in lower triangular form. In such a situation, SPSS^{X} would define and store the matrix as a Pearson correlation coefficient system file. If, however, there are additional statistics within the data, such as means or standard deviations, or, if the data are not in the necessary inline format, further specifications of the MATRIX DATA command would be required. Chapter 13 of the Version 3 manual contains needed details and examples. This chapter also describes the use of the MCONVERT command, which can perform conversions between covariance and correlation matrices.

Nonlinear regression is another added feature of the new SPSS^{x}. The NLR procedure handles unconstrained problems, while the more general CNLR allows linear and nonlinear constraints on any number of parameters. In addition, CNLR can optionally produce bootstrap estimates of parameter standard errors and correlations.

A number of enhancements have been made to previously existing SPSS^{x} procedures. Appendix H documents these changes.

In addition to the SPSS^{x} package, two add-on options are now available on CMS. The first of these, Lisrel VI, is a program designed for estimating unknown parameters in a set of linear structural equations. The report, entitled *USERPROC LISREL: Using Lisrel VI within SPSS*^{X}, may be ordered through SPSS to assist users new to Lisrel. Along with Lisrel, the TRENDS time-series package from SPSS has also been installed on CMS. This latter product will be available through October 1,1988 to give users an opportunity to assess its value.

Questions and comments concerning these new SPSS^{X} products can be forwarded to Advising Services at 978-HELP.

Polaroid Palette Slide Maker Upgraded

Terry Jones
tj@vm.utcs.utoronto.ca

UTCS has had a Polaroid Palette 35mm slide maker available in the Information Centre Lab for some time. This device allows you to make 35mm slides quickly and inexpensively using an IBM PC. Many different PC programs, including Microsoft Chart, Lotus Freelance, and 35mm Express, can produce output on the Polaroid Palette. The program most commonly used is 35mm Express, which produces very high quality business graphics (line graphs, bar and pie charts, and text slides) quickly and easily.

We recently upgraded the Polaroid Palette so that the slides it produces are much sharper and clearer than before. In technical terms, it used to produce slides at twice the resolution of the IBM Color Graphics Adapter, 640x400 pixels. Now it produces them at twice the resolution of the IBM Enhanced Graphics Adapter, 640x700 pixels. This makes the text much clearer and reduces the "staircase" effect often found in curves and sloping lines.

The upgraded Palette works exactly as before. From the user's point of view, nothing has changed; you just get better quality slides! If you are creating slides to add to an existing set, you may find that the higher quality slides make the older ones look inferior. In that case, you may wish to reshoot all the slides for a higher quality, more consistent presentation.

For more information about using the Polaroid Palette slide maker to add some style to your next presentation, please contact Advising Services at 978-HELP or Terry Jones at 978-4924.

Changes to ProComm TU.2.4.2 Version Scripts

Alicia Damley
damley@vm.utcs.utoronto.ca

As a result of hardware and software changes scheduled for September 6, some of the scripts distributed with ProComm Version TU.2.4.2 will no longer function properly. The chart displays these changes:

Current Script File Name:	Changed To:
CMS4	CMS2K
CMS2K	unchanged
UNIX4	UNIX2K
UNIX2K	unchanged
BBS4	BBS2K
BBS2K	unchanged
WYL2K, WYL4	obsolete
TSO2K, TSO4	obsolete

If you use the ProComm Dialing directory, <Alt><D>, to initiate modem connections involving these scripts, please make the appropriate changes to the affected entries.

Please note, if you would like to receive a copy of ProComm, bring two 360KB floppies to the Advising Office, 4 Bancroft Avenue, Room 201, between 10:00 a.m. and 6:00 p.m., Monday through Friday.

If you have any further questions, please call Advising Services at 978-HELP.

Domains and Your New Electronic Mail Address

Steve Younker
postmstr@vm.utcs.utoronto.ca

Users of electronic mail on the UTCS and EPAS machines will have noticed a change in the "From:" line in their outgoing mail. In the last two months, this line has changed from:

From: George Jones <GEORGE@UTORONTO>
or
From: George Jones <george@utorgpu.bitnet>

to this form:

From: George Jones <GEORGE@vm.utcs.utoronto.ca>
or
From: George Jones <george@gpu.utcs.utoronto>[1]

This new form of address reflects an ongoing movement within the various academic and research computer networks to adopt a standard format for electronic mail addresses. This style is called *domain* addressing.

Though you may not realize it, you are already familiar with this concept from sending conventional mail through the Post Office. The idea is that the sender does not have to know anything about the physical location of the recipient or the route to the recipient.

Here is an analogy of domains, using the Post Office as an example. My friend in Oxford, England sends mail to me at:

Steve Younker
4 Bancroft Avenue, Room 215
University of Toronto
Toronto, Ontario
Canada

In all probability my friend knows where Canada is located, but as he works his way up to my street address and room number, his knowledge of my actual location and how to get there approaches nil if he has not been here before. Of course he has no need to know those things, nor does the British Post Office know or care about this information. A British postal worker needs only to see that the mail is put on a plane headed for Canada. Once the mail arrives in Canada, it passes through a succession of people, each knowing only the next step on the path.

This is the most efficient way of handling conventional mail, since each person handling the mail needs to keep track of only one level of information. The same principle can apply to the network nodes that handle electronic mail. However, this is not the situation within many networks. Currently, if I wish to send electronic mail to a site in Italy, which is on the EARN network, the name of that site must be known to the UTORONTO computer. If it does not appear in our node tables, I cannot send the mail. Obviously, *every* site on the NetNorth, EARN, and BITNET networks must be updated with every change. We "postmasters" do this on a monthly basis, a time-consuming responsibility.

Domain addressing is a more efficient way of dealing with electronic mail. With a domain address such as:

george@vm.epas.utoronto.ca

computers within NetNorth, EARN, BITNET, and *any* other network have only to know how to get mail to .CA. You have probably guessed that .CA stands for Canada. Since the names of countries are usually stable, it is much easier to keep the node tables up to date.

On many networks, the computer simply sends the mail to a Canadian site that it knows about. The Canadian site knows about all

---

[1] This line is expected to change to **From: George Jones <george@gpu.utcs.utoronto.ca>** in the near future.

second level domains within Canada. In this case, the mail would be sent to UTORONTO. The UTORONTO *gateway* computer then sends it to the appropriate UTORONTO *subdomain*, in this case, EPAS. The EPAS subdomain delivers the mail to the VM/CMS machine, VM, which you know as UTOREPAS. Each level in the domain structure knows only about domain levels subordinate to it.

With this system U of T can add or delete computers at will and not affect anybody else in the world. Mail for the University is sent simply to UTORONTO, and we worry about where it goes from there.

Some questions may come to mind at this point.

- *I have the following Userid:* ***george@vm.utcs.utoronto.ca.*** *Do I have to quote the entire address when I give it to Susan, my colleague who has a Userid on the Engineering ECF system?*

No, but it's a good idea to do so. Let Susan decide how much of your address she has to use. Suppose Susan has an address that looks like this:

susan@gw.ccie.utoronto.ca

Since CCIE is a subdomain within the UTORONTO subdomain, Susan can send you mail by using the following address:

george@vm.utcs

- *My address is:* ***henry@gpu.utcs.toronto.edu.*** *Isn't that a domain address, too?*

  Yes, gpu.utcs.toronto.edu is a domain address, and you can still use it. This is an older domain used by some departments before U of T decided to adopt the UTORONTO.CA domain. All departments are planning to switch to the new domain within the next year or so.

- *I've been using* ***george@utoronto*** *for two years. Do I have to change? Will my colleagues still be able to use UTORONTO to send me mail?*

  There will be a short transition period, so your colleagues do not have to change right away. However, they will have to change sometime.

- *I've heard that some sites cannot handle such a complex address. Is this true?*

  Yes, this is true. A few sites remain that can send only to people who have Userids and node names with no more than eight characters in them. When you are communicating with this sort of site, use the eight-character UTORONTO address.

This has been a very brief description of domains. Domains are meant to simplify electronic mail, and domain addressing is moving us to a more flexible and efficient mail system. If you have any questions about domains, please call me at 978-6346.

The Effects of Domain Addresses on VM/CMS Users

Steve Younker
postmstr@vm.utcs.utoronto.ca

If you are a user of any VM/CMS machine on campus, you should be aware of how electronic addresses in the domain format will affect you. The best way to describe this is to use two domain addresses as examples. Let us say that one of our users, Younker, has the address:

younker@vm.utcs.utoronto.ca (old address: younker@utoronto)

and that he will be sending mail to:

tom@vax.dept.mcgill1.ca (old address: tom@mcgill1)

The SENDFILE, TELL, and NOTE commands on CMS do not work with domain addresses. Given a domain address, Younker must send his files to Tom with the MAIL command. Have a look at the online Help for the MAIL command to see how you can incorporate a file into your mail.

The easiest way to send a file with the MAIL command is to use the FILE option. It works like this:

```
mail tom at vax.dept.mcgill1.ca (file lab data a1
```

This starts a piece of mail and copies the file LAB DATA A1 into the body of the letter. You can then add more information to the mail and send it. You are restricted to files with a record length of 80 characters or less.

To use the TELL command, Younker must continue to use the old MCGILL1 node name.

```
tell tom at mcgill1 Hi Tom
```

If Younker enters:

```
tell tom at vax.dept.mcgill1.ca Hi Tom
```

an error message appears.

Changes to the NAMES File

The MAIL command no longer recognizes old-format node names in the NAMES file. That is, if Younker has his Userid and/or Tom's entered under the old format (UTORONTO) in his NAMES file, the MAIL command cannot put the names and addresses in NAMES into the mail header. Younker must change his NAMES file so that his own Node name is **vm.utcs.utoronto.ca** rather than **utoronto**; similarly, he must change Tom's **mcgill1** address to the new domain address.

Once Younker has changed Tom's address, he finds another little twist. Suppose he had used TOM as Tom's nickname in the NAMES file. He used to type:

```
mail tom              (short for:  mail tom at mcgill1)
or
tell tom Hi Tom       (short for:  tell tom at mcgill1 Hi Tom)
```

He can now enter:

```
mail tom              (short for:  mail tom at vax.dept.mcgill1.ca)
```

without a problem. However, if he enters:

```
tell tom Hi Tom       (short for:  tell tom at vax.dept.mcgill1.ca)
```

he gets an error message. Instead, he must include the node name:

```
tell tom at mcgill1 Hi Tom
```

If Younker often uses the TELL command to talk to Tom, he can make a second entry for Tom in his NAMES file, this time giving him a nickname of TOMM and a Node name of MCGILL1. Then he can enter:

```
tell tom Hi Tom       (short for:  tell tom at mcgill1 Hi Tom)
```

Of course, if he doesn't mind typing the entire address each time he uses the MAIL or TELL commands, he can override the entry in the NAMES file.

If you have any questions about the effects of domain addresses on VM/CMS commands, please call me at 978-6346 or call Advising Services at 978-HELP.

New Version of Rice MAIL Installed on CMS

Steve Younker
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A new version of the MAIL command was installed in early August. You will notice one major change in MAIL that may be confusing at first but is quite straightforward.

MAIL no longer gives you a message that your mail has been sent once you have entered the SEND command. In this case, no news is good news; your mail has been accepted by the MAIL software and is being processed.

If you experience any difficulties with this new version of MAIL, please call Advising Services at 978-HELP or send mail to:

advisor@vm.utcs.utoronto.ca

Accounting Services

Marg Doherty
doherty@vm.utcs.utoronto.ca

The Accounting Services Office, located in the Bancroft Building, Room 100B, handles setting up, changing, and deleting accounts and access codes. This group also answers inquiries about the status of accounts and in general assists customers with accounting problems or concerns. Accounting Services hours are 9:00 a.m. to 5:00 p.m., Monday through Friday.

Customers who plan to use University funds for computing, and who are not familiar with University or UTCS accounting sytems and procedures, should refer to the UTCS GUIDE TO PRODUCTS AND SERVICES: Accounting, available from the Accounting Services Office. Customers planning to use external funding should contact the UTCS Marketing Consultant at 978-6875.

Funding of accounts is done by raising an Encumbrance Memo, a blanket purchase order for use within the University. This form, as well as the Encumbrance Memo Change form, is available from the Purchasing Department, 7th Floor, 215 Huron St., 978-2353. The order form for these includes instructions on their use.

An Account Balance letter is sent to alert the account holder when the remaining balance reaches 20% of the account's total allocation. If additional allocation is not made, the account is locked on the first day it shows a negative (overdrawn) balance.

Copies of the Internal, External, and Commercial Rates Schedules are available from the Accounting Services Office, the UTCS Information Centre (Room 201, 4 Bancroft Avenue), or Ihor Prociuk at 978-6875.

Protect Your Codes

Marg Doherty
doherty@vm.utcs.utoronto.ca

The following precautions will ensure optimal security for your Userids.

1. Think of your Userid and password as a credit card or blank cheque — **Don't Lose Them.**
2. **Do Not Imbed Your Password** in a file that others can read.
3. **Obscure the Password** at the start of your terminal session.
4. **Avoid Shared Userids** by establishing a separate Userid for each user.
5. **Change Your Password** at regular, frequent intervals.
6. Instruct the Accounting Services Office to **Lock Your Userid** if you do not plan to use it for a period of time.
7. **Set Expiry Dates** for Userids of limited duration.
8. **Watch the Balance or Accumulated Usage** to determine whether unauthorized activity is taking place on your Userid.
9. **Request a Spending Limit** on the Userid.
10. **Report Suspected Misuse Immediately** to the Accounting Services Office.

Remote Job Entry from GP UNIX to VM/CMS Service.

Ted Sikorski
ted@vm.utcs.utoronto.ca

In June, UTCS installed a product called VMBATCH on the VM/CMS machine (see "VMBATCH Service Available on VM/CMS" in the May/June *ComputerNews*). VMBATCH allows you to run a series of CMS commands in the background, leaving you free to log off or to do other things in your session. It is now possible to submit a job to VMBATCH from other UTCS systems. This is called Remote Job Entry (RJE), and it is done by creating a VMBATCH job on your home system and sending it to the VM system; the results of the job may then be returned to your account on your home system. On GP UNIX, the *send* command is used to accomplish this task. The general format of this command is:

send *filename* ...

Send causes a file to be submitted to VMBATCH on the IBM VM/CMS system. Multiple files may be specified on the command line, but each file is assumed to be a separate VMBATCH job with its own Job statement, commands, and data. If no filenames are supplied, the standard input is used.

Two options are available:

-f	Do not fold (convert) lower case to upper case. Normally any lower-case characters are translated to upper case before sending.
-l	List the contents of the file on standard output after folding but do not send.

No implicit routing of printout is done; a SENDBACK command must be included in the file or no output of any form will be returned.

The *send* command in fact submits the job to a server called VMBTSRV, which resides on the remote VM/CMS service; VMBTSRV in turn runs VMBATCH on the remote system. However, since you do not invoke VMBATCH directly, you must take additional care to provide the necessary commands to run a remote job properly. It is important to realize that simply submitting a job will not likely generate any return output. You must specifically request that any new files created by the job be sent back to your GP UNIX Userid. As already mentioned, this request is handled by SENDBACK.

Job Format

The minimum job consists of a Job statement followed by some data. The data is interpreted as a REXX EXEC to be run on the VM/CMS machine (see "An Introduction to REXX" in the May/June *ComputerNews*).

The following sample job runs a SAS program on VM/CMS. The SAS program itself and the data for it are included as part of the job.

```
 /job ted password sikorski utorgpu t 1:00
 :filenm batch exec
/* */
 'filedef inf my data'
/* Get the SAS product */

 'getme sas'
/* Invoke SAS */
 'sas sasprog'
/* Send the listing back */
 'sendback sasprog listing'
 :filenm sasprog sas
 ... SAS statements
 :filenm my data
 ... data for the SAS program
```

This sample job creates three files: BATCH EXEC, SASPROG SAS, and MY DATA. The **:filenm** keyword is needed to separate the files; without it, VMBATCH would be unable to determine where one file ends and another begins. The SENDBACK command is used to send the output of the previous command (in this case, the SAS command) to the Userid *sikorski* on the machine *utorgpu*, both specified in the Job statement at the beginning.

Job Statement Format

The syntax of the Job statement is:

/job *vmuserid vmpassword originuser originnode* t *mm:ss* pun *pppp* prt *rrrr*

where:

/job	indicates that this is a Job statement
vmuserid	is a valid VM/CMS Userid (used for billing purposes)
vmpassword	is the logon password of the VM/CMS Userid
originuser	is the Userid you want SENDBACK to send to
originnode	is the node you want SENDBACK to send to
t *mm:ss*	is any valid VMBATCH time limit syntax; is optional — the default is 2.0 minutes
pun	is the punch limit; is optional — the default is 10,000 lines
prt	is a print limit; is optional — default is 10,000 lines

SENDBACK

The SENDBACK command syntax is:

sendback *filename filetype filemode* (prt/pun

Note that the SENDBACK command is a VM command embedded near the end of the VM job; it is not a UNIX command issued to the shell.

The command is used to return the contents of any new files the job may have created on your VM/CMS minidisk. If you do not specify a filename, SENDBACK sends back the contents of whatever new files have been created on your 191 minidisk in netdata format. To use print or punch format, specify the appropriate option after the parenthesis.

The output arrives on GP UNIX via *urep*. You must issue the *netaccept* command before you can read the files deposited in your home directory by *urep*.

Documents at UTCS

All vendor-produced documentation may be ordered through the UTCS Information Office, Room 201, 4 Bancroft Avenue. UTCS documents and selected vendor documents are also stocked there for purchase. For more information on prices, call Dale Wright at 978-4990. Whenever feasible, documents are made available online, and users are encouraged to print their own copies. On the VM machine, a special command has been provided for this purpose.

To print online documents on:

	IBM VM/CMS	**GP UNIX**
	Type "help document".	Use *lpr* command

The following examples relate to the table below. The document to be printed is the UTCS Guide to Census Tapes, called CENSUS LISTING on CMS and /usr/doc/utcs/census on GP UNIX. <RETURN> means RETURN or ENTER key.

CMS:

```
document <RETURN> <RETURN>
laser census listing (forms yxle <RETURN>
```

GP UNIX:

```
nohup lpr -8p -fyxle /usr/doc/utcs/census & <RETURN>
```

UTCS Documents in hardcopy

New:

Previously announced:

Academic's Guide to Microcomputer Systems
Character Sets for Highspeed Printing
UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction
UTCS GUIDE TO PRODUCTS AND SERVICES: Basics
UTCS GUIDE TO PRODUCTS AND SERVICES: Accounting
UTCS Catalogue: Numerical Products
UTCS Catalogue: Statistics Products
UTCS Catalogue: Text Products
UTCS Guide to Census Tapes
UTCS Guide to Kermit
UTCS Guide to Micro File Transfer Service
UTCS Guide to Text Processing on GP UNIX

UTCS Documents online

	CMS LISTING	GP UNIX	Forms Code
New:			
Previously announced:			
UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction	INTRO	/usr/doc/utcs/intro	*
UTCS GUIDE TO PRODUCTS AND SERVICES: Basics	BASICS	/usr/doc/utcs/basics	*
UTCS Catalogue: Access, Part 1	ACCESS1	/usr/doc/utcs/access1	*
UTCS Catalogue: Access, Part 2		/usr/doc/utcs/access2	*
UTCS Catalogue: Numerical Products	NUMCAT		*
Product-Function List	NUMLIST		BXQD
UTCS Catalogue: Statistics Products	STATCAT		*
Product-Function List	STATLIST		BXQD
UTCS Catalogue: Text Products	TEXTCAT	/usr/doc/utcs/textcat	*
UTCS Guide to BMDP	BMDP		*
UTCS Guide to Census Tapes	CENSUS	/usr/doc/utcs/census	*
Recipes for Using Tapes on VM/CMS	QUIKTAPE		*
UTCS Guide to FORTRAN on VM/CMS	FORTRAN		*
UTCS Guide to GP UNIX		/usr/doc/utcs/gpunix	*
UTCS Guide to Highspeed Printing	PRINT	/usr/doc/utcs/print	*

* *Recommended forms code for the 8700 is YXLE unless otherwise stated.*
† *Use the 87set command. Type "help 87set".*

Documents continued

UTCS Documents online continued

	CMS LISTING	GP UNIX	Forms Code
UTCS Guide to Kermit	KERMIT	/usr/doc/utcs/kermit	*
UTCS Guide to Micro File Transfer Service	MICROXFR		*
UTCS Guide to Micro Laser Printing	MICRLASR		*
UTCS Guide to SAS	SAS		*
UTCS Guide to SCRIBE	SCRIBE		*
(For printing instructions, see page 1 of document)			
UTCS Guide to Series/1 Terminal Use	SERIES		*
3270 Emulation:			
Cybernex APL100 and Volker Craig VC404	CYBER		*
DM1520	DM1520		*
Hardcopy Terminal	HARDCOPY		*
IBM 3101	IBM3101		*
IBM PC Kermit	PCKERMIT		*
SOROC IQ	SOROC		*
VT52	VT52		*
VT100	VT100		*
UTCS Guide to SPSS	SPSS		*
UTCS Guide to Text Processing on GP UNIX		/usr/doc/utcs/text	YXOG
UTCS Guide to TFW.MAK in SCRIBE	TFWMAK		*
UTCS Guide to VM/CMS	CMSGD		*
UTCS Guide to WSCRIPT	WSCRIPT		*
UTCS Rate Schedule (Commercial)	RATESCOM		†
UTCS Rate Schedule (External)	RATESEXT		†
UTCS Rate Schedule (Internal)	RATESINT		†

Other Documentation online

Kermit		
Kermit Protocol Manual	KERMITPM	YXOE
Kermit User Guide	KERMITUG	YXOF
ProComm		
ProComm Reference Manual	PROCOMM	YXOE
VM Tape Documents		
TapeMap User's Guide and Reference	TAPEMAP	*
VMTAPE Messages and Codes	VMTMSGS	YXOE
VMTAPE User's Guide	VMTUSER	YXOE
VMSECURE		
VMSECURE User's Guide	VMSECURE	YXOE
Waterloo SCRIPT		
Reference Manual	WSCRPTRF	YXLC
User's Guide	WSCRPTUG	YXLC
Using SCRIPT in MVS/TSO	WSCRPTSO	YXLC
Waterloo SCRIPT and a PostScript Printer	WSCRPTPS	YXLC
Formula Processor Summary	WSCRPTFP	YXLC
GML User's Guide	GMLUG	YXLC
GML Reference Summary	GMLRFSUM	YXLC
OBS WYLBUR		
Messages and Codes		YXLD
Qwik Files		YXLD
Reference Summary		YXLG
Reference Manual		YXLD
7.0 Release Guide		YXLC
User Guide		YXLD
Electronic Mail		
A User's Guide to Electronic MAIL	MAILBOOK	YXOC

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* *Recommended forms code for the 8700 is YXLE unless otherwise stated.*

† *Use the 87set command. Type "help 87set".*

Consulting and Enquiries

Applications Support & Advising Supervisor	Alex Nishri	BC214	978-7109
External Marketing Consultant	Ihor Prociuk	BC217	978-6875
Erindale College	Joe Lim	ER2035	828-5311
Information Office	Dale Wright	BC201	978-4990
Account & Access Code Enquiries (U of T)	tba	BC101B	978-8703
Account & Access Code Enquiries (External)	Sylvia May	BC101B	978-7148
IBM PC Maintenance	Kam Mark	BC103	978-5050
Tape Library (Academic Services)	tba	MP368	978-7319
Tape Library (Administrative Services)	Miranda Fong	MP368	978-6693
Terminal Service	Rosi Tseu	BC105	978-7087
UTCS Noncredit Short Courses	Irene Rosiecki	BC217	978-4565

Consulting & Advising Services:	978-HELP
CMS, and GP UNIX userids:	ADVISOR
CMS Userid for mail problems:	POSTMSTR
System Status Enquiries (GP UNIX)	978-4318
System Status Enquiries (IBM)	978-7393
Interactive Services 300 (bps)	978-6200
Interactive Services 1200 (bps)	978-3959
Interactive Services 2400 (bps)	978-7239
Datapac	4320 0056
Telnet	0302043200056
Tymnet	<backspace>DPAC;302043200056

UTCS Directory

Director:	Dr. Warren Jackson	BC118	978-8948	wcj@vm.utcs.utoronto.ca
Associate Director:	Eugene Siciunas	BC116	978-5058	eugene@vm.utcs.utoronto.ca
Managers:				
Communications &Technical Support	Norman Housley	BC121B	978-4967	norman@vm.utcs.utoronto.ca
Information Centre	Don Gibson	BC217	978-7331	don@vm.utcs.utoronto.ca
Internal Systems Support	Ron Vander Kraats	BC121A	978-4428	rvk@vm.utcs.utoronto.ca
Operations Support	Dr. Bob Chambers	MP350	978-7092	
Systems Support	Bill Lauriston	MP331	978-3579	bill@vm.utcs.utoronto.ca

Committees on Computing

Committee on Administrative Computing	Chair	Janice Oliver	978-4322
UTCS Board	Chair	Prof J.F. Keffer	978-4984
Supercomputer Users' Group at U of T	Chair	Prof. J.M. Ting	978-4971
Research Board Standing Committee on Computing	Chair	Prof. C.C. Gotlieb	978-2986

Legend

BC = Bancroft Building
ER = Erindale
MP = McLennan Physical Labs

* NetNorth/BITNET/EARN

UTCS Terminal and Advising Sites

Names and Locations

Central Advising Office (CAO), 978-HELP
Engineering Annex (EA, CDF), 11 King's College Road, Rooms 103, 107, 107B, 201, 203
Erindale College (Erin), 828-5339, Mississauga Road, Erindale Campus, Rooms 2037, 2039A-B-C, 2045
Robarts, Robarts Library, 130 St. George St., Room 1061A
Sidney Smith (Sidney), 100 St. George St., Rooms 1071, 2105
St.Michael's College, 121 St. Joseph St., Room 107
Trinity College, 6 Hoskins Ave., Room 024
Victoria University, 73 Queens Park Cres., Room 208

Access Hours

Sites	Hours of Access				Restrictions*	Advising
	Mon-Thurs	Fri	Sat	Sun		
CAO	10:00-18:00	10:00-18:00	closed	closed	Research	978-HELP
CDF	24 hrs	24 hrs	24 hrs	24 hrs	Undergrads	No
EA	24 hrs	24 hrs	24 hrs	24 hrs	None	978-HELP for Research
Erin (2039)Δ	9:00-17:00	9:00-17:00	12:00-16:00	12:00-16:00	Research	Rm 2005
(2045-46-47)	24 hrs	24 hrs	24 hrs	24 hrs	Undergrads	Rm 2005
(235)†	8:00-22:00	8:00-17:00	closed	closed	None	Rm 2046
Robarts	8:30-24:00	8:30-24:00	9:00-22:00	13:00-22:00	None	978-HELP for Research
Sidney	7:00-24:00	7:00-24:00	7:00-24:00	7:00-24:00	None	978-HELP for Research
St.Michael's	24 hrs	24 hrs	24 hrs	24 hrs	None	978-HELP for Research
Trinity	8:00-22:00	8:00-22:00	8:00-22:00	8:00-22:00	None	978-HELP for Research
Victoria	8:30-23:00	8:30-23:00	closed	closed	None	978-HELP for Research

Sites	Advising Hours
CAO	Monday through Friday, 10:00 - 18:00
Erin	Monday through Friday, 09:00 - 20:00

Legend

* Research includes graduates, faculty, staff.
Δ Key access available.
† Access restricted to building hours.

Terminal and Printer Access

Sites	PACX	Network Terminal Server	CMS Only	Printers	CDF/PC Terminals
CDF	Y	N	N	Y	N
EA	N	Y	N	Y	N
Erin	Y	Y	N	Y	N
Robarts	Y	N	N	Y	Y
Sidney	N	Y	N	Y	Y
St.Michael's	Y	N	N	Y	Y
Trinity	N	N	Y	Y	Y
Victoria	Y	N	N	Y	Y

(Y=yes, N=no)

UTCS Services

UTCS Centrally Owned and Managed

Systems

IBM VM/CMS

- General Purpose Timesharing; access to NetNorth, BITNET, and EARN networks; access to CRAY X-MP/22
- 4381 P02 processor, 16 megabytes of memory
- CP operating system, VM/SP HPO R4.2
- CMS timesharing system, VM/SP Release 4
- RSCS spooling system, Release 3
- CRAY station Release 4

GP UNIX
Technical Assistance: 978-8853

- General Purpose Timesharing under SUN UNIX 3.2
- SUN 3/280, 8 megabytes of memory
- access to Linotronic typesetter
- offers a sophisticated and powerful environment for text processing
- offers a sophisticated programming environment suitable for commercial software development or testing
- full access to USENET, an electronic technical information exchange facility
- offers excellent electronic mail facilities and ability to send or receive mail from most computer networks worldwide, such as UUCPNET, ARPANET, NetNorth, BITNET, CSNET, CDNNET

Services

Communications & Technical Support
Primary Phones: 978-3787, 978-4967

- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains communications and computer systems, particularly IBM PCs, Micro Vaxes, and Macintoshes, on a contract basis or on a cost-per-call basis.
- provides consulting on computer systems technology and installs computer systems
- provides access between the IBM systems and machines using UNIX, VMS and other operating systems. Ethernet, Pronet, and IBM TRN technologies are used over various transmission media including optical fibre. More basic communications techniques are also used for moderate speed links.
- provides consulting on local area networking and installs LANS
- provides access to NetNorth (BITNET), the North American Universities Network; and USENET, the UNIX networking fraternity
- will provide a communications solution to department needs on a contractual basis

Information Centre
Primary Phone: 978-HELP

- Provides assistance in use of electronic messaging, including use of Local Area Networks (LANS); NetNorth/BITNET/EARN, the world Universities network; CDNNET, the Canadian X.400 network; ARPANET; CSNET; USENET; and other international connections.
- provides advising, consulting and documentation on:
  - command languages, including CMS and UNIX
  - high level languages, including FORTRAN, and PL/I
  - packages and libraries, including SAS, SPSS-X, BMDP, IMSL, and NAg
  - editors and formatters, including XEDIT, ed, nroff/troff
- provides general micro support
  - selection consulting for hardware and software
  - Micro Lab for evaluation of hardware and software
  - advice on University discounts
  - media conversion and data transfer
  - operates UTCS Microcomputer Bulletin Board System
  - offers Micro Laser Printing Service
  - offers 35mm slide production service using Polaroid Palette
  - administers Local Area Network of PCs for Education Facility
  - administers Macintosh Education Facility
- high quality typesetting
- installs and maintains application packages
- provides short courses and seminars on the more popular services and software packages

> *The principal mandate of UTCS is to plan, implement, and operate facilities and "common-carrier" networks, and to plan and support divisional, departmental or project computer facilities as requested.*

Facilities Managed by UTCS

Administrative Computing

- administrative IMS/VS, DB/DC, DB2, Batch, and TS0
- 4381-R14 processor, 32 megabytes of memory
- MVS operating system

Computer Disciplines Facility/UNIX

SUN 3/280s, 8 megabytes of memory (cdfa)

- Computer Science interactive access
- SUN UNIX 3.5

SUN 3/280s, 16 megabytes of memory (cdfb)

- Computer Science interactive access
- SUN UNIX 3.5

Computer Disciplines Facility/PC

- 97 TI Professional Computers connected in a Local Area Network
- introductory Computer Science instruction
- MS-DOS with Turing environment

Erindale College Systems

VAX 8200, 8 megabytes of memory

- instructional access using VMS
- research access

VAX 8350, 5 megabytes of memory

- instructional access using UNIX (Berkeley UNIX 4.3BSD)

Institutional Relations System

VAX-11/750, 8 megabytes of memory

- database services to the owner departments using VMS

EPAS Facility

- 4361-5 processor, 16 megabytes of memory
- general VM/CMS services to the owner departments

Ontario Centre for Large Scale Computation (OCLSC)

- Cray Research Inc. X-MP/22
- 2 processors, 2 megawords main memory
- solid state disk (SSD) with 16 megawords of storage
- COS 1.16 operating system
- VAX-11/750 + microVAX II providing VMS front-end services directly and to VMS and UNIX nodes
- VM front-end services provided by UTCS 4381-P02

UTCS Software List

SOFTWARE LIST for MAINFRAME COMPUTERS VM/CMS, UNIX

Each programming language or package available at UTCS has a support level. In general, Class A Products receive full support, Class B limited support (as time and resources allow), Class C no active support.

For complete details of UTCS product support policy, see the UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction.

Package/Compiler	System	Support	Version
Communications			
Kermit	VM/CMS	A	---
Kermit	UNIX	B	4C(058)
FTS	VM/CMS	A	---
MAIL/MAILBOOK	VM/CMS	A	86.359
MICROLASER	VM/CMS	A	---
macget/macput	UNIX	C	---
netcopy, netexec, to (NetNorth Tools)	UNIX	B	---
xmodem	UNIX	C	---
ftp,rsh,rlogin,telnet,rep (Access via TCP/IP to most of the networked machines on all three campuses)	UNIX	B	---
rn/Pnews	UNIX	B	---
mail,mh,Mail	UNIX	-	---
rje	UNIX	B	---
Graphics			
PLOTBASIC (FORTRAN)	VM/CMS	C	---
SAS/GRAPH	VM/CMS	A	5.16
Languages			
ASSEMBLER(F)	VM/CMS	C	---
Concurrent Euclid	VM/CMS	C	1.9
FORTUTILS	VM/CMS	A	2.2
PL/I OPT Compiler	VM/CMS	B	1.5.1
REXX	VM/CMS	A	---
SNOBOL 4	VM/CMS	C	3.5
Turing	VM/CMS	C	---
VS FORTRAN	VM/CMS	A	1.4.1
VS Pascal	VM/CMS	C	2.2
Waterloo C	VM/CMS	C	1.3
WATFIV	VM/CMS	C	V2L0
WATFOR-77	VM/CMS	A	1.3
cc	UNIX	A	---
f77	UNIX	C	---
ratfor	UNIX	C	BSD std.
ttc	UNIX	C	---
pc	UNIX	C	BSD std.
yacc	UNIX	C	---
awk	UNIX	C	---
adb,dbx	UNIX	C	BSD std.
Numerical			
IMSL	VM/CMS	A	9.2,10.0
LINPACK	VM/CMS	C	---
NAg	VM/CMS	A	Mark 11
Statistical			
BMDP	VM/CMS	A	Level 85, Level 87
Minitab	VM/CMS	B	5.1
NAg	VM/CMS	A	Mark 11
NTSYS	VM/CMS	C	---
SAS	VM/CMS	A	5.16
SPSS^{x}	VM/CMS	A	2.2

Software List continued

Package/Compiler	System	Support	Version
Text Processing			
SCRIBE	VM/CMS	C	4(1400)-1
Waterloo SCRIPT	VM/CMS	B	86.1
XEDIT	VM/CMS	A	---
8700 Pseudotypesetting	VM/CMS	C	n/a
MICROLASER	VM/CMS	A	---
ed	UNIX	A	---
vi	UNIX	C	---
cmacs	UNIX	C	---
spell	UNIX	C	---
diction/explain	UNIX	C	---
eqn	UNIX	B	---
tbl	UNIX	B	---
pic	UNIX	C	---
troff	UNIX	B	---
nroff	UNIX	B	---
TeX	UNIX	C	---
Utilities			
FORTUTILS	VM/CMS	A	2.2
TPRINT	VM/CMS	C	---
crypt	UNIX	A	BSD std.
compress	UNIX	C	BSD std.
csh	UNIX	B	BSD std.
diff	UNIX	A	BSD std.
grep	UNIX	A	BSD std.
ipr	UNIX	B	---
learn	UNIX	C	BSD std.
patch	UNIX	C	---
sed	UNIX	A	BSD std.
sort	UNIX	A	BSD std.
sh	UNIX	A	BSD std.
tar	UNIX	A	BSD std.
uniq	UNIX	A	BSD std.

Software List continued

SOFTWARE LIST for MICROCOMPUTERS

The following are microcomputer software packages for which UTCS can provide either support or some information. As with mainframe products, micro packages receive full support (Class A), limited support (Class B), or no active support (Class C). The specific criteria differ from those for mainframe classes and are outlined in the Academic's Guide to Microcomputer Systems.

Package/Compiler	Version	Environment	Support
Application Development Tools			
BASIC			
GW BASIC	—	MS-DOS	B
C			
Microsoft C	5.1	MS-DOS	B
MPW C	2.0.2	Macintosh	B
WATCOM C & Express C	6.0	MS-DOS	B
FORTRAN			
IBM FORTRAN/2	1.0	MS-DOS 3.3 & OS/2	B
Language Systems FORTRAN	1.0	Macintosh	C
Microsoft FORTRAN	4.0	MS-DOS	B
WATCOM WATFOR-77	3.0	MS-DOS	A
Pascal			
MPW Pascal	2.0.2	Macintosh	C
TURBO Pascal	—	MS-DOS	B
Tools			
ResEdit	1.2d0	Macintosh	B
HyperCard	1.2.1	Macintosh	A
Macintosh Programmer's Workshop	2.0.2	Macintosh	B
WATCOM GKS	1.3	MS-DOS	B
Communications			
File Transfer & Terminal Emulators			
Kermit	0.8(35)	Macintosh	A
Kermit	2.30	MS-DOS	A
Kermit	—	Apple II DOS	C
Kermit	—	CP/M	C
Lap-Link DeskLink	1.0	Macintosh	B
Lap-Link Mac	1.2	Macintosh	B
Lap-Link PC	2.16	Macintosh	B
MacTerminal	2.2	Macintosh	B
PC TALK3	—	MS-DOS	C
PC PLOT III	—	MS-DOS	C
ProComm	TU 2.4.2	MS-DOS	A
Red Ryder	10.3	Macintosh	B
Network Systems			
AppleShare	1.1	Macintosh	B
Novell Advanced Netware	2.0B	MS-DOS	B
TOPS	2.0	Macintosh	B
TOPS	2.0	MS-DOS	B
Network System Utilities			
Inter•Poll	1.0	Macintosh	C
Database Managers			
4th Dimension	Int. 1.03	Macintosh	B
AskSam	2.2	MS-DOS	B
Clipper	S87	MS-DOS	B
DATAEASE	2.5	MS-DOS	B
dBASE II	—	CP/M	B
dBASE III Plus	1.1	MS-DOS	A
FoxBASE	2.14u	MS-DOS	C
Notebook II	2.03	MS-DOS	C
REFLEX	—	MS-DOS	B
ViewFinder III	—	MS-DOS	B
ZyINDEX	—	MS-DOS	B

Software List continued

Package/Compiler	Version	Environment	Support
Desktop Publishing			
PageMaker	2.0a, 3.0	Macintosh	A
PageMaker	1.0a, 3.0	MS-DOS	A
Ventura	1.1	MS-DOS	B
XPress	1.0	Macintosh	C
Electronic Mail			
Microsoft Mail	1.36	Macintosh	B
QuickMail	1.0	Macintosh	B
Graphics			
Charting			
35mm Express	4.02	MS-DOS	B
Cricket Graph	1.2	Macintosh	C
Freelance Plus	2.01	MS-DOS	B
Lotus 1-2-3	2.01a	MS-DOS	B
Microsoft Excel	1.5	Macintosh	B
Microsoft Excel	2.0	MS-DOS	B
SigmaPlot	—	MS-DOS	C
Draw and CAD			
Aldus Freehand	1.0	Macintosh	B
Cricket Draw	1.1	Macintosh	C
Generic CADD	3.0	MS-DOS	C
MiniCad	4.05	Macintosh	C
Illustrator	1.0	Macintosh	B
Illustrator88	1.6	Macintosh	B
MacDraft	1.2a	Macintosh	C
MacDraw	1.95	Macintosh	A
MacDrawII	1.0v1	Macintosh	B
Windows Draw	1.02	MS-DOS	C
Image and Scanning			
ImageStudio	1.0	Macintosh	B
Publish Pac	2.0	Macintosh	B
Publish Pac	2.0	MS-DOS	B
Text Pac	2.0	MS-DOS	B
Paint			
DR HALO	1.23	MS-DOS	C
MacPaint	2.0	Macintosh	A
Microsoft Paintbrush	2.0	MS-DOS	C
PC Paintbrush	2.5	MS-DOS	C
SuperPaint	1.1	Macintosh	B
Windows Paint	2.03	MS-DOS	C
Plotting Subroutines			
WATCOM GKS	1.3	MS-DOS	B
Numerical			
Eispack	n/a	MS-DOS	C
Eureka	n/a	MS-DOS	C
GAUSS	1.49B	MS-DOS	C
Linpack	n/a	MS-DOS	C
MathCAD	2.0	MS-DOS	C
MuMATH-83	4.12	MS-DOS	C
Operating Systems			
IBM PC, PS/2, and compatibles			
IBM OS/2	1.0	n/a	B
IBM PC-DOS	3.3	n/a	B

Software List continued

Package/Compiler	Version	Environment	Support
Microsoft MS-DOS (incl IBM PC-DOS)	3.2	n/a	A
Microsoft Windows	2.03	n/a	A
Microsoft Windows 386	2.03	n/a	C
Macintosh II, Macintosh SE, and Macintosh Plus			
Finder	6.1	n/a	A
MultiFinder	6.0	n/a	A
System	6.0	n/a	A
Apple II			
Apple II DOS	3.3	n/a	C
CP/M	2.20	n/a	C
ProDos	1.0	n/a	C
Sound			
SoundWave	1.0	Macintosh	B
MacRecorder	1.0	Macintosh	B
Spreadsheet			
APPLEWORKS	—	MS-DOS	C
HAL	1.0	MS-DOS	B
Lotus 1-2-3	2.01a	MS-DOS	B
Microsoft Excel	1.5	Macintosh	B
Microsoft Excel	2.0	MS-DOS	B
Multiplan	1.5	Macintosh	C
Statistical			
MACSPIN	1.5	Macintosh	C
Minitab	82.1.1	MS-DOS	C
PowerStat	1.04	MS-DOS	C
SAS/PC	6.03	MS-DOS	A
SPSS/PC+	2.0	MS-DOS	A
STATPRO	2.0c	MS-DOS	C
STATWORKS	1.2	Macintosh	B
SYSTAT	3.2	Macintosh	B
SYSTAT	3.2	MS-DOS	B
Word Processing			
FinalWord II	2.0	MS-DOS	B
MacWrite	5.01	Macintosh	B
Manuscript	1.0	MS-DOS	C
Microsoft Word	3.01	Macintosh	A
Microsoft Word	4.0	MS-DOS	A
Nota Bene	3.0	MS-DOS	B
PC-TeX	2.1	MS-DOS	B
Sprint	1.0	MS-DOS	B
T^3	—	MS-DOS	C
Volkswriter Scientific	—	MS-DOS	C
WordPerfect	4.2 & 5.0	MS-DOS	A
WordPerfect	1.0	Macintosh	C
WordStar	3.3	MS-DOS	B
Utilities			
Apple Turnover	—	MS-DOS	A
FASTBACK	—	MS-DOS	B
Norton Utilities	4.0	MS-DOS	A
Copy II Disk	7.1	Macintosh	B
MacZap	5.1	Macintosh	B
Sidekick	—	MS-DOS	B
SuperKey	—	MS-DOS	C
TURBO Lightning	—	MS-DOS	C
XenoDisk	1.41	MS-DOS	A

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